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(56) Documents Cited

GB 2295522 A

GB 2292287 A

GB 2289192 A

GB 2272346 A

GB 2227394 A

WO 90/13195 A1

US 4481382 A

(58) Field of Search

UK CL (Edition O ) G5R RAC RAD RGA , H4J JK , H4K  
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1/21 1/64 1/65 , H04Q 7/32

ONLINE: WPI, JAPIO, CLAIMS

(54) Mobile telephone with message store

(57) A mobile telephone incorporates a store 24 for recording and reproducing dictation using the speaker 10 and microphone 12 of the telephone.

A control unit 22 enables audio data to record into or be reproduced from a store 24. The control unit 22 includes a switching arrangement so that the store can record data locally or from a remote location and reproduce data locally or at a remote location.

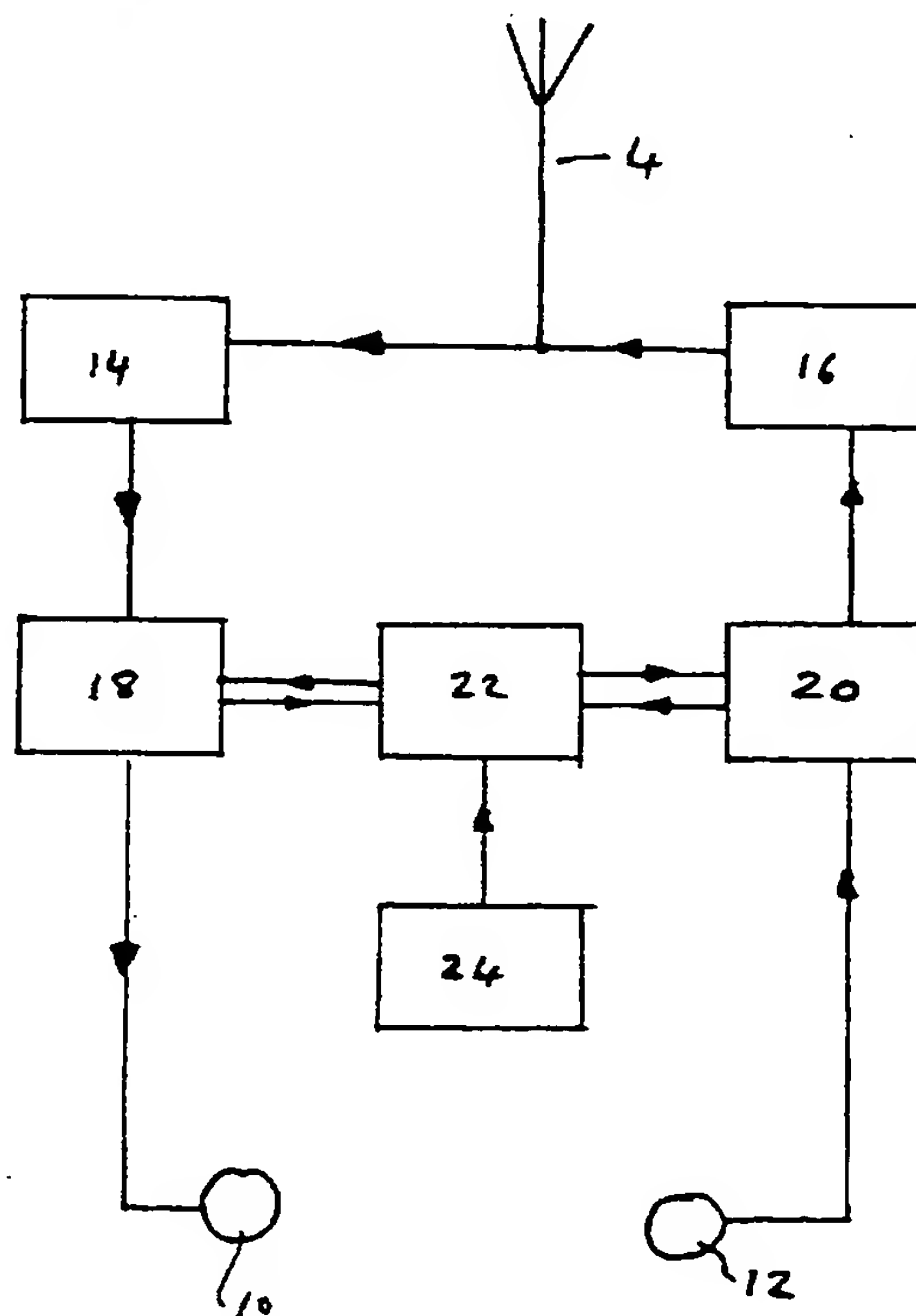


Fig 2.

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

FIG 1

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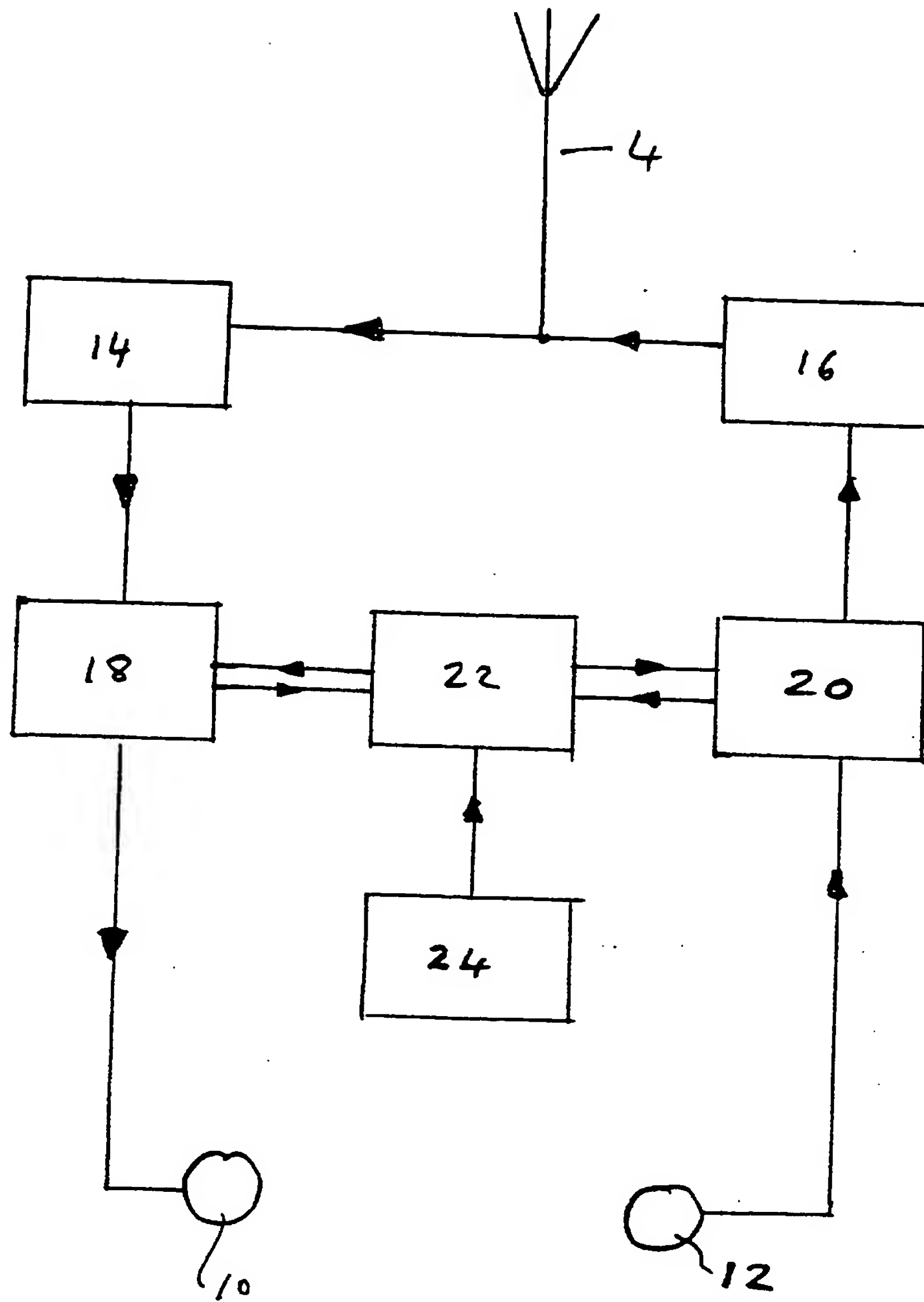


Fig 2.

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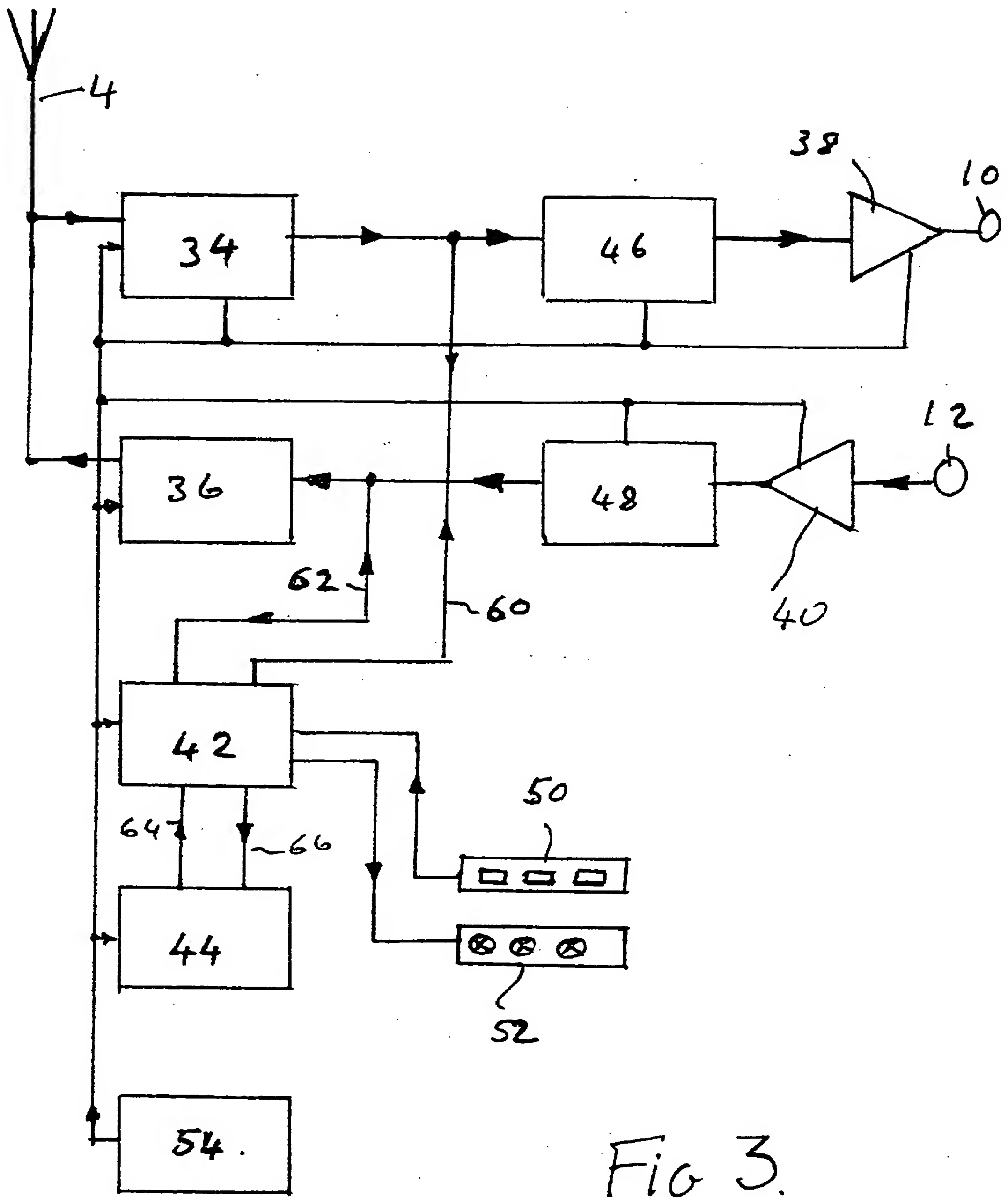


Fig 3.

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MOBILE TELEPHONES

The present invention relates to mobile telephones.

Mobile telephones are particularly useful devices in allowing communication access to personnel at remote sites. Significant amounts of information are transferred but there is often difficulty in assimilating and reviewing the information transferred.

It is an object of the present invention to provide an improved mobile telephone.

According to the present invention there is provided a mobile telephone incorporating a store for storing audio data, the store and the mobile telephone being powered by a common power supply and using common components including at least a speaker and a microphone.

Advantageously, the common components comprise a first amplifier connecting the microphone to a transmitter, and a second amplifier connecting a receiver to the speaker and including a control unit for selectively connecting the output of the store to the inputs of the first and second amplifiers and the outputs of the amplifiers to the store.

According to the present invention there is further provided a digital mobile telephone comprising a receiver feeding an acoustic output transducer through a digital to analogue converter, an acoustic input transducer feeding a transmitter through an analogue to digital converter and a digital store, control means for selectively connecting the input of the store to the output of the receiver, and selectively connecting the output of the store to the input of the digital to analogue converter whereby received acoustic signals can be stored and reproduced.

A mobile telephone embodying the present invention, will now be described, by way of example, with

reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a plan view of the mobile telephone;

Figure 2 is a block diagram of a first  
5 embodiment of the mobile telephone; and

Figure 3 is a block diagram of a second  
embodiment of a mobile telephone.

Figure 1 shows a mobile telephone having a  
housing 2 supporting an antenna 4. The front panel of the  
10 housing carries a keyboard 6, an LED display panel 8, a  
speaker 10 and a microphone 12.

The housing also encloses a recording and  
reproducing device (not shown) to record and reproduce  
speech received by the telephone either through the  
15 antenna 4 or through the microphone 12 or both.

The recording and reproducing device may  
comprise a magnetic recording or reproducing device or a  
solid state store. The device shares some of the  
components of the mobile telephone as will now be  
20 described.

Figure 2 is a block diagram of an analogue  
mobile telephone embodying the invention. Parts in Figure  
2 similar to those in Figure 1 are similarly referenced.  
As shown, the antenna 4 feeds a receiver 14 which in turn  
25 feeds an audio signal to the speaker 10 via an amplifier  
18. A switching device 22 is operable to cause the  
amplified audio signal to be fed to a store 24.

The output of the microphone 12 is amplified by  
an amplifier 20 and transmitted by a transmitter 16 via  
30 the antenna 4 to a remote location.

The switching device 22 is operable to cause the  
amplifier audio output of the microphone 12 to be fed to  
the store 24.

The switching device 22 has two further  
35 switching modes namely one in which the audio signal

stored in the store 24 is reproduced and fed via the amplifier 18 to the speaker 10 and another in which the audio signal stored in the store 24 is reproduced and fed via the amplifier 20 to the transmitter 16.

5           In each case, the switching device 22 connects the store 24 to the output side of the amplifier 18 and 20 when an audio signal is to be stored and to the input side of the amplifiers 18 and 20. When the signal is reproduced from the store 24. It will then be appreciated that because the recording and reproducing device shares many of the components of the mobile telephone, significant savings in costs can be achieved.

10           Figure 3 is a block diagram of a digital mobile telephone embodying the invention. Parts in Figure 3 similar to those in Figure 1 are similarly referenced. As shown, an antenna 4 feeds a receiver 34. The output of the receiver is converted from digital to analogue format by a digital to analogue converter 46. The resulting analogue signal is amplified by an amplifier 38 and fed to the speaker 10.

20           The analogue output of the microphone 12 is amplified by an amplifier 40 and converted into digital format by an analogue to digital converter 48. The output of the converter 48 is fed to a transmitter 36 which transmits the signal to a remote location via the antenna 4.

30           A control and switching unit 42 has a first line 60 coupled to the junction between the receiver 34 and converter 46, a second line 62 coupled to the junction between the transmitter 36 and the converter 48, a third line 64 coupled to the output of a solid state store 44 and a fourth line 66 coupled to the input of the store 44.

35           The control and switching unit 42 includes a set of push button switches 50 and a set of indication lights 52.

Operation of said switches 50 selectively causes the transfer of digitised audio signals between the speaker 10, the microphone 12 and the antenna, and the indicator lights 52 will indicate which of the different transfers is being effected.

As can be seen, messages recorded by the antenna 4 as well as messages entered into the microphone 12 can be stored in the store 44. Equally, messages stored in the store 44 can be reproduced and transmitted by the antenna 4 or applied to the speaker 10. The particular mode of operation at any particular instant will be indicated by the indicator lights 52.

A single power supply 54 powers the transmitter 36 the receiver 34, the amplifiers 38 and 34, the digital to analogue converter 46. The analogue to digital converter 48, the control and switching unit 42 and the solid state store 44. The store 44 may be provided with a back up supply in the event that the main power supply 54 fails or becomes discharged.

It will be appreciated that the provision of a mobile telephone with its own built-in recording and reproducing device will provide the user, in a single gadget, with the ability to make and receive telephone calls and the ability of record and reproduce dictation. The savings in electronic circuitry achieved is conducive to making the single gadget significantly cheaper than a separate mobile telephone and dictation machine but also provides the added advantages of being able to receive dictation from a remote location and being able to transmit dictation to a remote location.

While the use of magnetic recording and reproducing media can be used to store dictation in the mobile telephone, the advent of solid state stores with very high capacities and low size and weight make this form of storage media the more preferable one for mobile telephones.



CLAIMS

1. A mobile telephone incorporating a store for storing audio data, the store and the mobile telephone being powered by a common power supply and using common components including at least a speaker and a microphone.
2. A telephone according to Claim 1, wherein said common components comprise a first amplifier connecting the microphone to a transmitter, and a second amplifier connecting a receiver to the speaker and including a control unit for selectively connecting the output of the store to the inputs of the first and second amplifiers and the outputs of the amplifiers to the store.
3. A digital mobile telephone comprising a receiver feeding an acoustic output transducer through a digital to analogue converter, an acoustic input transducer feeding a transmitter through an analogue to digital converter and a digital store, control means for selectively connecting the input of the store to the output of the receiver, and selectively connecting the output of the store to the input of the digital to analogue converter whereby received acoustic signals can be stored and reproduced.
4. A telephone according to Claim 3, wherein the control means comprises keys selectively operable to provide one of said connections.
5. A telephone according to Claim 4, wherein the control means comprises indicators to indicate the instantaneous connection made.
6. A telephone according to any one of Claims 3 to 5, including a common power supply for all the components.
7. A mobile telephone substantially as hereinbefore described, with reference to the accompanying drawings.

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Application No: GB 9612503.4  
Claims searched: 1 to 6

Examiner: Peter Easterfield  
Date of search: 12 August 1996

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK Cl (Ed.O): G5R (RAC, RAD, RGA); H4J (JK); H4K (KBHE); H4L (LDA, LECX)  
Int Cl (Ed.6): H04B 1/03, 1/034, 1/38; H04M 1/00, 1/02, 1/03, 1/21, 1/64, 1/65;  
H04Q 7/32  
Other: Online: WPI, JAPIO, CLAIMS

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2295522 A (MARSHALL)	1-4,6
X	GB 2292287 A (CHIN)	1-4,6
X	GB 2289192 A (NEC)	1-4,6
X	GB 2272346 A (BATALUNT)	1-4,6
X	GB 2227394 A (BROWN)	1-4,6
X	US 4481382 A (VILLA-REAL)	1-6
X	WO 90/13195 A1 (SCWARTZ <i>et al</i> )	1-4,6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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